

REMARKS**Summary of the Office Action**

In the Office Action dated August 28, 2002, the drawings stand objected to allegedly because reference characters “44” and “54” have both been used to designate optical structure. Claims 1-4 and 6-8 stand rejected under 35 U.S.C. §102(e) as allegedly being anticipated by U.S. Patent No. 6,144,795 to Dawes et al. (hereinafter “Dawes”). Claim 5 stands rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Dawes in view of U.S. Patent No. 6,052,392 to Ueda et al. (hereinafter “Ueda”).

Summary of the Response to the Office Action

Applicant has amended the specification to address the Examiner’s concerns regarding the labeling of the drawings. Applicant has amended claim 3 to differently describe the invention. Applicant traverses the rejection of claim 4. Applicant cancels claims 1 and 2 without prejudice or disclaimer. Accordingly, claims 3 to 8 are now pending in this application. Applicant has amended multiple dependent claims 5-8 in accordance with the cancellation of claims 1 and 2.

The Objections to the Drawings

The drawings stand objected to allegedly because reference characters “44” and “54” have both been used to designate optical structure.

At page 2 of the Office Action, the Examiner asserts that the drawings failed to comply with 37 CFR 1.84(p)(4). Applicant respectfully submits that this objection is improper since there is currently no reference character “44” in any of the drawings of this application.

Nevertheless, Applicant has amended the specification to address the Examiner's concerns regarding the use of reference characters "44" and "54". Specifically, Applicant has amended the paragraph beginning at page 14, line 22 of the specification to recite --optical substrate 54-- rather than "optical substrate 44" to correct the apparent typographical error in the specification. Applicant respectfully submits that the drawings fully comply with the requirements of 37 CFR 1.84(p). Accordingly, Applicant respectfully requests that the objections to the drawings be withdrawn.

The Rejection of claims 1 & 2 under 35 U.S.C. § 102(e)

Claims 1 and 2 stand rejected under 35 U.S.C. §102(e) as allegedly being anticipated by Dawes. Applicant cancels claims 1 and 2 without prejudice or disclaimer. Accordingly, claims 3 to 8 are now pending in this application. In light of this cancellation, the rejection of claims 1 and 2 under 35 U.S.C. §102(e) is now moot.

The Rejection of claim 3 under 35 U.S.C. § 102(e)

Claim 3 stands rejected under 35 U.S.C. §102(e) as allegedly being anticipated by Dawes. Applicant has amended claim 3 to differently describe the invention. This amendment is supported at least by the recitation at page 10, lines 12-19 of the original specification. To the extent this rejection might be reapplied to the newly amended claim 3, it is respectfully traversed as follows.

Independent claim 3, as amended, recites a laser device combination including an optical medium with at least the feature that "the optical medium is obtained by curing an oligomer substance so as to be changed to a polymer substance, said oligomer substance being

substantially same as said polymer substance, consisting of at least one member selected from a group consisting of a polymethyl silsesquioxane, a polymethyl-hydride silsesquioxane, a polyphenyl silsesquioxane, a polyphenyl-methyl silsesquioxane, a phenyl silsesquioxane-dimethyl siloxane copolymer, a polyphenyl-vinyl silsesquioxane, polycyclohexyl silsesquioxane, a polycyclopentyl silsesquioxane, a polyhydride silsesquioxane, a poly(2-chloro ethyl) silsesquioxane, and a poly(2-bromo ethyl) silsesquioxane, or a mixture of said at least one member and a polysiloxane, said oligomer substance being changed to a substance containing a polymer.” Applicant respectfully submits that Dawes does not teach or suggest the laser device combination recited in claim 3 including at least this particular feature.

In the curing process of Dawes, as recited in column 4, lines 30-38, cured material becomes different from the precursor material:

“Preferably, the inorganic-organic material comprises a solid material comprised of **methyl-siloxane groups, phenyl-siloxane groups and fluorine which is provided by curing**, most preferably by thermally curing, and a precursor material. Preferably, the precursor material comprises a precursor mixture comprised of polydimethyl siloxane, methyl trialkoxy silane, phenyl trialkoxy silane, and a structural modifier with a fluorine atom. (Emphasis added).”

Accordingly, the curing process in Dawes clearly changes its initial material such as solid material comprised of methyl-siloxane groups, phenyl-siloxane groups and fluorine by combining the precursor material.

In the contrary, the present invention does not require any precursor, which allows the initial material $\text{RSiO}_{1.5}$, specifically “polysilsesquioxane” as recited in claim 3, to be the same as

it was even after subjecting the material through the curing process. This is because the curing process of Dawes is only aimed at increasing the molecular weight, but the curing process of the instant invention also contributes to the purification of material.

Moreover, Applicant respectfully submits that “polysilsesquioxane” is an oligomer material having a molecular weight in the range from 1000 to 2000. On the other hand, any material disclosed in Dawes is a monomeric material with a molecular weight in the order of 100 to 200.

In view of the foregoing remarks, Applicant respectfully asserts that Dawes does not teach or suggest each feature of independent claim 3. Thus, Applicant respectfully submits that claim 3, as amended, is in condition for allowance as not being anticipated by Dawes. Accordingly, Applicant respectfully requests that the rejection of claim 3 under 35 U.S.C. § 102(e) be withdrawn.

The Rejection of claim 4 under 35 U.S.C. § 102(e)

Claim 4 stands rejected under 35 U.S.C. §102(e) as allegedly being anticipated by Dawes. Applicant respectfully traverses this rejection for at least the following reasons.

Independent claim 4 recites a laser device combination including an optical medium with the feature that “the optical medium contains an amorphous silica produced by curing at least one member selected from a group consisting of a poly(2-chloro ethyl) silsesquioxane, a poly(2-bromo ethyl) silsesquioxane, and a mixture thereof.” Applicant respectfully submits that Dawes does not teach or suggest the laser device combination recited in claim 4 including at least this particular feature.

The Examiner asserts at page 5 of the Office Action that Dawes discloses a laser device with the feature that the optical medium contains an amorphous silica produced by curing at least one member selected from the group of the above-cited poly-silsesquioxanes. Applicant respectfully submits that Dawes merely recites a plurality of groups consisting of instances of siloxanes, silanes and oxysilanes. Applicant respectfully submits that Dawes does not teach or suggest the laser device combination including an optical medium that contains an amorphous silica produced by curing at least one member selected from the group of the poly-silsesquioxanes recited above, and as claimed.

In view of the foregoing remarks, Applicant respectfully asserts that Dawes does not teach or suggest each feature of independent claim 4. Thus, Applicant respectfully submits that claim 4 is in condition for allowance as not being anticipated by Dawes. Accordingly, Applicants respectfully request that the rejection of claim 4 under 35 U.S.C. § 102(e) be withdrawn.

The Dependent Claims 5-8

Applicant has amended multiple dependent claims 5-8 in accordance with the cancellation of claims 1 and 2 but not to distinguish over any prior art.

Applicant respectfully submits that claims 5-8 are in condition for allowance at least because of their dependence upon allowable claims 3 and 4. Applicant further submits that the applied Ueda reference fails to cure the deficiencies of the Dawes reference, as set forth above. Accordingly, Applicant respectfully requests that the rejections of claims 6-8 under 35 U.S.C. § 102(e) and the rejection of claim 5 under 35 U.S.C. § 103(a) be withdrawn.

Conclusion

In view of the foregoing, Applicant respectfully requests reconsideration, withdrawal of all rejections and objections and the timely allowance of the pending claims. Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact Applicant's undersigned representative to expedite prosecution.

Attached hereto is a marked-up version of the changes made by the current amendment.

The attachment is captioned "**VERSION WITH MARKINGS TO SHOW CHANGES MADE.**"

If there are any other fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-0310. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such an extension is requested and the fee should also be charged to our Deposit Account.

Respectfully Submitted,

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Dated: December 30, 2002

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VERSION WITH MARKINGS TO SHOW CHANGES MADE**IN THE SPECIFICATION:**

The specification has been amended as follows:

The paragraph beginning at page 14, line 22 has been replaced with the following paragraph:

-- The laser device 50 comprises an optical fiber structure 52 with an optical fiber 14 fixed in a bundled state after folding for a plurality of times, and an optical substrate [44]54 for holding the optical fiber structure 52 as well as introducing an exciting light to the optical fiber structure 52.--

IN THE CLAIMS:

Claims 1 and 2 are cancelled.

Claims 3, and 5-8 are amended as follows:

3. (Amended) A laser device with an optical fiber containing a laser activating substance inside for emitting a laser beam from a distal end portion thereof, a part of said optical fiber being fixed in a dense state by an optical medium, wherein
the optical medium [contains] is obtained by curing an oligomer substance [or a polymer including] so as to be changed to a polymer substance, said oligomer substance being substantially same as said polymer substance, consisting of at least one member selected from a group consisting of a polymethyl silsesquioxane, a polymethyl-hydride silsesquioxane, a polyphenyl silsesquioxane, a polyphenyl-methyl silsesquioxane, a phenyl silsesquioxane-dimethyl siloxane copolymer, a polyphenyl-vinyl silsesquioxane, polycyclohexyl silsesquioxane,

a polycyclopentyl silsesquioxane, a polyhydride silsesquioxane, a poly(2-chloro ethyl) silsesquioxane, and a poly(2-bromo ethyl) silsesquioxane, or a mixture of said at least one member and a polysiloxane, said oligomer substance being changed to a substance containing a polymer.

5. (Amended) The laser device according to any of claims [1 to 4] 3 and 4, wherein the optical fiber is wound in a spiral shape or a coil-like shape.

6. (Amended) The laser device according to any of claims [1 to 4] 3 and 4, wherein the optical fiber is fixed in a bundled state.

7. (Amended) The laser device according to any of claims [1 to 4] 3 and 4, wherein a flat surface is formed on a side surface of the optical fiber such that the optical fiber is fixed in the state with the flat surface closely contacted with one another.

8. (Amended) A light signal amplifying device comprising the laser device according to any of claims [1 to 4] 3 and 4, having another distal end portion of the optical fiber of the laser device as an input end of a signal light, and the distal end portion as an output end of an amplified light.